

## WINTER STOMACH CONTENTS OF SOUTH DAKOTA BADGERS

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**ABSTRACT.**— Stomach contents of 33 hunter and trapper killed badgers, *Taxidea taxus*, from northeastern South Dakota were examined during the 1980–81 fur season. Mammal prey species made up the bulk of the ingested food, followed by plant materials. Approximately 40 percent of stomach contents were mammals, 35 percent were of plant origin, 10 percent were birds, 10 percent were insects, while the remainder was mostly inorganic materials. Little significant difference was found in variety of food items consumed by each sex. South Dakota badgers are opportunistic foragers in the wintertime when food is scarce. Individual food items are usually taken in quantity when encountered by badgers.

The severity of typical northern plains winters fixes food as a priority item in the lives of nonhibernating carnivorous mammals. Answers to the question as to varieties of prey consumed was sought by examination of a ubiquitous carnivore, the American badger, *Taxidea taxus*.

Stomachs of 33 badgers (15 male, 18 female) from the northeastern South Dakota counties of Faulk, Brown, Spink, and Edmunds were obtained from a local fur broker during the 1980–1981 season. Several keys were used to identify prey animal hairs, particularly Moore, Spence, and Dugnoles (1974). Cuticular scale patterns of hairs were pressed into a film of nail polish and observed (Weingart 1973).

A variety of materials were found in stomachs, including plants, inorganic materials (soil, stones), insects, and prey animals. Stomachs contained an average of 98 grams of food materials each. From the standpoint of relative volume and variety of identifiable remains, 40 percent were mammal prey animals, 35 percent were of plant origin, 10 percent were birds, 10 percent were insects, and the remainder were mostly undigested inorganic materials. Similar foods were found in stomachs of both sexes with the exception that straw and small stones were not found in female stomachs.

At least one-half of all badger carcasses purchased by the fur dealer had empty stomachs. This suggests that either stomach con-

tents had largely been digested during long trap stays or that many badgers spend considerable time with empty stomachs.

Most of the food matter contained within the stomachs had been thoroughly crushed and mascerated; the largest bone fragment was  $1.7 \times 0.8$  cm. In fact, skull remnants of mammal prey were difficult to identify. In several instances portions of hair-covered epidermis of larger prey were present; these were the largest pieces of food material seen, although occasional intact mouse viscera and other assorted prey extremities were observed.

Sunflower seeds, corn, and millet were present in several stomachs in considerable quantities, though these too had mostly been chewed into a paste, with few kernels intact. We observed what possibly may have been several masses of feces. The majority of stomachs contained from 5 to 20 *Ascaris*-like parasites.

We found, as did Jense (1968), who studied badger food habits and energy utilization in east central South Dakota, that badgers are opportunistic foragers of edible plant and animal materials. Inasmuch as they feed on whatever is at hand, variety is often lacking, especially if the prey is a large animal or is plant material. One markedly distended stomach contained 375 grams of plant and animal materials. Full stomachs contained little variety; rather, they were often replete with a single food type.

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Jense (1968) suggested that grains were important fall foods, that birds and eggs were eaten only during the spring and summer. We found that squirrels, mice, rabbits, and other small mammals formed much of the typical winter badger diet, but also evidence was found of birds, insects, and grains. Snead and Hendrickson (1942) found many of the same food items in diets of Iowa badgers; they found that percentages of kinds of foods taken changed as availability changed with the seasons.

Hibernating prey animals appear to be attractive food sources throughout the winter, especially ground squirrels. During the mid-winter 1978-1979 fur season, 17 toads were found in a single badger stomach. Rosenweig's (1966) statement that there is a clear trend for larger predators to seek larger prey appears true enough, although, judging from the quantities of mice in stomachs, badgers obviously do not ignore such small mammals as important auxiliary food sources.

In summary, winter diets of South Dakota badgers vary with the prey species, which represent most nonaquatic vertebrate groups, as well as insects. Opportunistic feeding appears to be common among badgers, which is not unexpected considering sparse food resources during the severe cold of typical northern plains winters.

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